

Semantic Constraints I: Causativization*

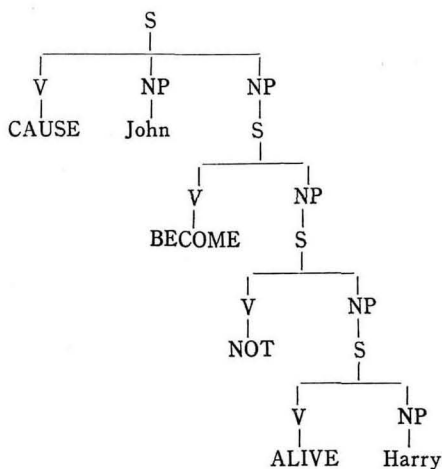
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I. Introduction

McCawley (1968) posited the underlying structure (2) for (1).

(1) John killed Harry.

(2)



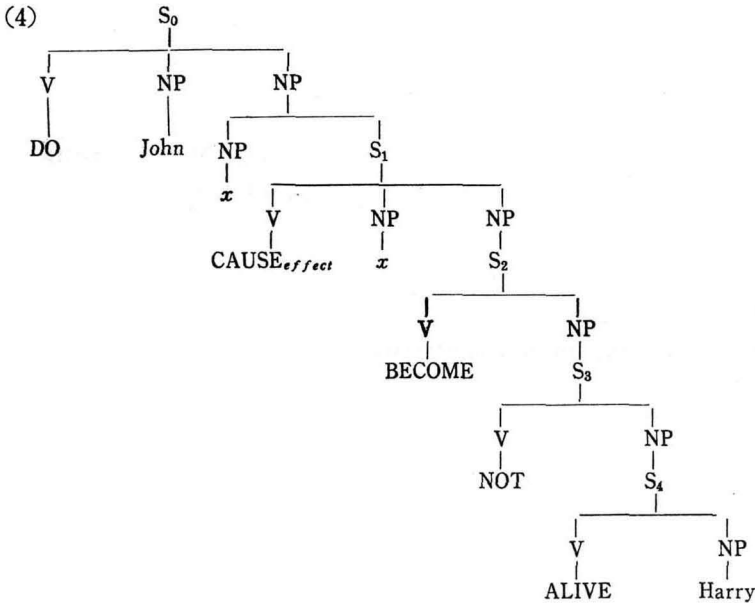
The major semantic motivation for positing (2) as the underlying structure of (1) is that it makes it possible to explicitly capture the paraphrase relations among (3a, b, c) and (1).

- (3) a. John caused Harry to die.
b. John caused Harry to become dead.
c. John caused Harry to become not alive.

In other words, by applying the optional rule of Predicate-Raising successively to (2) and subsequent lexicalization processes, we can derive (1) and (3a, b, c) from (2).

McCawley (1972), however, had to revise (2) into (4) as the underlying structure of (1) in order to deal with various objections levelled against positing (2) as the underlying structure of (1) since McCawley (1968).

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The purpose of this paper is to discuss two serious problems with (4) as the underlying structure of (1) and to propose to deal with them by positing semantic constraints instead of further elaborating the underlying structure as in McCawley (1972).

2. CAUSE vs. cause

Positing (2) as the underlying structure for (1) and (3a, b, c) implies that the underlying semantic item *CAUSE* is equivalent to the English lexical item *cause* and that *kill* is semantically equivalent to *cause to die*. This implication is shown to be wrong by the difference in grammaticality between (5) and (6) as Chomsky (1971) argues.

(5) John caused Harry to die by arranging for him to drive cross-country with a pathological murderer.

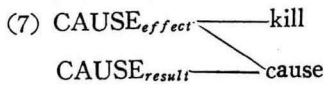
(6) *John killed Harry by arranging for him to drive cross-country with a pathological murderer.

What is involved here is the fact that the verbs like *kill* imply a directness of connection between the agent and the resulting event, which is lacking in the associated phrases like *cause to die*. In fact, McCawley (1972) admits 'that *CAUSE* cannot be identified with the English word *cause*, specifically, that *cause* covers a wider range of things than does the *CAUSE*', and further states:

It is necessary at the very least to distinguish between a relation of 'direct causation' and a more general notion of causation, and one could propose representing the difference between *John killed Harry* and *John caused Harry to die* as a difference between two predicates, *CAUSE*₁ and *CAUSE*₂.

The next step is incorporating Vendler's (1967) notions of 'effect' and 'result' into the distinction

between the two predicates, he proposes to specify it by $CAUSE_{effect}$ and $CAUSE_{result}$ instead of $CAUSE_1$ and $CAUSE_2$. Specifically, he argues that the English lexical item *cause* is the surface realization of either of the underlying semantic items $CAUSE_{effect}$ and $CAUSE_{result}$, whereas the English lexical item *kill* is related only to the underlying semantic item $CAUSE_{effect}$. This relationship may be schematically represented as follows.



Thus, McCawley (1972) is claiming that *cause* is ambiguous while *kill* is not. It has been assumed in transformational grammar that ambiguity is characterized as a single surface structure being derived from two or more different underlying structures. Under this current assumption it can be argued that each of the sentences of (3a, b, c) are derived from two different underlying structures due to the alleged ambiguity of the verb *cause* in them.

It is, however, highly questionable that the alleged ambiguity of the verb *cause* is the kind of ambiguity that should be represented as two separate semantic items in the underlying structure. First of all, the alleged two meanings, 'direct causation' and 'indirect causation', of the word *cause* are so closely related that it is clearly less than optimal to posit the unrelated separate semantic items¹ for them. Second, positing the two separate underlying semantic items is only to ensure the correct lexicalizations for *kill* and *cause* from proper underlying semantic structures, and has no other transformational motivations. Third, the alleged ambiguity of *cause* is not of the same nature as what has been generally assumed to be ambiguous in generative grammar. It has been generally assumed that (8) is ambiguous but that (9) is vague.

(8) John likes visiting relatives.

(9) John kicked Harry.

(8) is ambiguous in that it means either that John likes going to visit relatives or that John likes relatives who are visiting. (9) is vague in the sense that John could have kicked Harry with either his left foot, or right foot, or both; that is, it is left vague which. The ambiguity of (8) and the vagueness of (9) may be explicitly characterized as follows. Consider (10) for the ambiguity of (8).

(10) John likes visiting relatives and so does Harry.

(10) is two ways ambiguous, not four-ways ambiguous; it can mean (11) or (12) but cannot mean (13) or (14).

(11) John likes going to visit relatives and Harry also likes going to visit relatives.

¹ The notation, $CAUSE_{effect}$ and $CAUSE_{result}$, that McCawley uses for the two semantic items should not be considered to capture any semantic similarity between them, since the two semantic items $CAUSE_{effect}$ and $CAUSE_{result}$ are being posited as two separate unanalyzable semantic units though they share the symbol *CAUSE*.

(12) John likes relatives who are visiting and Harry also likes relatives who are visiting.

(13) John likes going to visit relatives and Harry likes relatives who are visiting.

(14) John likes relatives who are visiting and Harry likes going to visit relatives.

Consider (15) for the vagueness of (9).

(15) John kicked Harry and so did Tom.

If it is assumed in (15) that John kicked Harry with his left foot, (15) does not also require that Tom kicked Harry with his left foot. Thus, sentences like (15) behave differently from sentences like (10) under the *do-so* transformation. Now consider (16).

(16) John caused a man to die and so did Harry.

If it is assumed in (16) that John killed a man himself, (16) does not also require that Harry killed a man himself. That is, (16) behaves like a vague sentence (15) rather than like an ambiguous sentence (10). And it has been assumed in transformational grammar that vagueness is not the kind of semantic notion to be explicitly represented in the underlying structure even in generative semantics, since it is extremely difficult not only to motivate the postulation of such a semantic notion in the underlying structure but also to adequately represent it even if it is to be represented in the underlying structure.

Given the above-mentioned difficulties with positing two separate underlying semantic items for the two types of causation, one of the most plausible alternatives would be to posit the single underlying semantic item for both types of causation along with some semantic constraint to the effect that the underlying semantic item neutral with respect to directness of causation is realized with the meaning of direct causation when it is incorporated as part of the semantic content of a lexical item in a lexicalization process and otherwise left indeterminate with respect to directness of causation in surface realization.

3. The Underlying Subject of *CAUSE*

Another difference between (2) and (4) is that the underlying subject of the abstract predicate *CAUSE* is an agent in (2), but it is not in (4). Specifically McCawley (1972) states as follows with respect to (4).

the second NP in the top S is to be interpreted as 'an event or action *x* such that S'; that event or action occurs as subject of *CAUSE*.

In other words, in (4) McCawley adopts Vendler's (1967) claim that (17) is derived from what he calls the 'fuller form' (18).

(17) John caused the disturbance.

(18) John's doing something caused the disturbance.

But this claim has several serious problems. First, as Vendler (1967) himself acknowledges, (17) attributes responsibility to John while (18) does not. Furthermore,

as pointed out by Cohen (1971), John might have caused the disturbance by his failure to do something, rather than by his doing something. Second, consider (19).

(19) John intentionally caused the disturbance.

McCawley would claim that (19) is derived from (20), since an adverb like *intentionally* cannot take an inanimate subject like a sentential subject.

(20) John's intentionally doing something caused the disturbance.

But obviously the meaning of (20) is different from that of (19). (19) does not say that John did something intentionally but that John intentionally caused the disturbance. Thus, even if, from an entirely semantic point of view, the sentence (17) can be said to imply John's doing something that caused the disturbance, which leads to positing something like (20) as the underlying structure of (19), that semantic implication should not be directly posited or specified in the underlying structure. I propose that such semantic implications should be accounted for not in terms of underlying structure but in terms of some kind of semantic constraints, which are very likely to be language-universal.

4. Semantic Constraints

The notion of semantic constraint is not new among generative grammarians now. Lakoff (1972) proposes to posit meaning-postulates for the semantic facts which he considers should not or cannot be postulated in the underlying structure, e.g., relationships among atomic predicates. Lakoff (1971) also argues that even if (21) and (22) are not entirely synonymous it can be assumed that (21) is derived from (22) since the meaning of *cease to know* is contained in the meaning of *forget*.

(21) John forgot his native language.

(22) John ceased to know his native language.

In other words, he assumes that whatever semantic difference exists between *forget* and *cease to know* is to be accounted for not by elaborating the underlying semantic structure but by positing some other semantic principles or constraints. The diverse kinds of semantic constraints like these should hopefully be incorporated into a single type of semantic constraints. And the necessity of semantic constraints in generative grammar is a natural consequence of the assumption that the underlying structure is a motivated semantic structure and not simply a factually correct and fully-specified semantic structure.

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